

## ABSTRACT OF THE DISCLOSURE

Method and apparatus for manipulating and monitoring analyte flowing in fluid streams. A giant magnetoresistive sensor has an array of sensing elements that produce electrical output signals which vary in dependence on changes in the magnetic field proximate the sensing elements. The analyte is included in a stream, such that the stream has a magnetic property which is dependent on the concentration and distribution on the analyte therein. The stream is flowed past the giant magnetoresistive sensor and in sufficiently close proximity to cause the magnetic properties of the stream to produce electrical output signals. The electrical output signals are monitored as an indicator of analyte concentration or distribution in the stream flowing past the GMR sensor. Changes in the magnetic field produced by the background stream are introduced by analyte molecules, whose presence in the flow past the GMR will effect the output reading.